Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Oxalic acid, anhydrous
Cat No.: AC186430000; AC186430010; AC186430050; AC186432500
Synonyms: Ethanedionic acid
Recommended Use: Laboratory chemicals

Company: Acros Organics
Entity / Business Name: Acros Organics
Entity / Business Name: One Reagent Lane
Entity / Business Name: Fair Lawn, NJ 07410
Emergency Telephone Number:
For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100
CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview
Causes severe eye burns. Causes skin burns. Harmful in contact with skin and if swallowed. Irritating to respiratory system. Corrosive to metals. Hygroscopic.

Appearance: White
Physical State: Powder Solid
Odor: Odorless

Target Organs: Liver, Kidney, Respiratory system, Eyes, Skin
Potential Health Effects
Acute Effects
Principle Routes of Exposure

**Eyes**
Causes severe burns. May cause blindness or permanent eye damage.

**Skin**
Harmful in contact with skin. Causes burns.

**Inhalation**
Irritating to respiratory system. May be harmful if inhaled.

**Ingestion**
Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects
Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions
No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid</td>
<td>144-62-7</td>
<td>98</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

**Ingestion**
Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**
> 93.4°C / > 200.1°F

**Method**
No information available.

**Autoignition Temperature**
No information available.

**Explosion Limits**

<table>
<thead>
<tr>
<th>Upper</th>
<th>No data available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Unsuitable Extinguishing Media**
No information available.

**Hazardous Combustion Products**
No information available.

**Sensitivity to mechanical impact**
No information available.

**Sensitivity to static discharge**
No information available.
Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. HANDLING AND STORAGE
Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not breathe dust. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Do not store in metal containers. Corrosives area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
</table>
| Oxalic acid | TWA: 1 mg/m³  
STEEL: 2 mg/m³ | (Vacated) TWA: 1 mg/m³  
(Vacated) STEEL: 2 mg/m³ | IDLH: 500 mg/m³  
TWA: 1 mg/m³  
STEEL: 2 mg/m³ |

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
</table>
| Oxalic acid | TWA: 1 mg/m³  
STEEL: 2 mg/m³ | TWA: 1 mg/m³  
STEEL: 2 mg/m³ | TWA: 1 mg/m³  
STEEL: 2 mg/m³ |

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

<table>
<thead>
<tr>
<th>Eye/face Protection</th>
<th>Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin and body protection</td>
<td>Wear appropriate protective gloves and clothing to prevent skin exposure, follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced</td>
</tr>
<tr>
<td>Respiratory Protection</td>
<td></td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder Solid
Appearance: White
odor: odorless
Odor Threshold: No information available.
pH: 1.3
Vapor Pressure: < 0.01 mmHg @ 20 °C
Vapor Density: No information available.
Viscosity: No information available.
Boiling Point/Range: No information available.
Melting Point/Range: 189 - 191°C / 372.2 - 375.8°F
Decomposition temperature: No information available.
Flash Point: > 93.4°C / > 200.1°F
Evaporation Rate: No information available.
Specific Gravity: 1.900
Solubility: Soluble in water
log Pow: No data available
Molecular Weight: 90.04
Molecular Formula: C2 H2 O4

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions. Hygroscopic.
Incompatible Materials: Strong oxidizing agents, Strong bases, Metals, Acid chlorides
Hazardous Decomposition Products: Carbon monoxide (CO), Carbon dioxide (CO2)
Hazardous Polymerization: Hazardous polymerization does not occur
Hazardous Reactions: None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal (Rat)</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid</td>
<td>7500 mg/kg</td>
<td>20000 mg/kg</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Irritation: Causes severe eye burns. Causes skin burns
Toxicologically Synergistic Products: No information available.
Chronic Toxicity

Carcinogenicity
There are no known carcinogenic chemicals in this product.

Sensitization
No information available.

Mutagenic Effects
No information available.

Reproductive Effects
Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects
Developmental effects have occurred in experimental animals.

Teratogenicity
Teratogenic effects have occurred in experimental animals.

Other Adverse Effects
See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid</td>
<td>Not listed</td>
<td>4000 mg/L LC50 24 h</td>
<td>Not listed</td>
<td>EC50 = 136.9 mg/L/48h</td>
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</table>

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility

<table>
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<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
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<tbody>
<tr>
<td>Oxalic acid</td>
<td>-0.81</td>
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</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Proper technical name</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2923</td>
<td>CORROSIVE SOLIDS, TOXIC, N.O.S.</td>
<td>(OXALIC ACID)</td>
<td>8</td>
<td>6.1</td>
<td>II</td>
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</table>
14. TRANSPORT INFORMATION

TDG

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<th>UN2923</th>
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<td>Proper Shipping Name</td>
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<tr>
<td>Hazard Class</td>
<td>8</td>
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<tr>
<td>Subsidiary Hazard Class</td>
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<td>Packing Group</td>
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IATA

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IMDG/IMO

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<td>Packing Group</td>
<td>II</td>
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</table>

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid</td>
<td>T</td>
<td>X</td>
<td>-</td>
<td>205-634-3</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations
TSCA 12(b)  Not applicable

SARA 313  
Not applicable

SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act  
Not applicable

Clean Air Act  
Not applicable

OSHA  
Not applicable

CERCLA  
Not Applicable

California Proposition 65  
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

- Reportable Quantity (RQ): N
- DOT Marine Pollutant: N
- DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security  
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade  
Slight risk, Grade 1

Canada  
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class  
D1B  Toxic materials
E   Corrosive material
16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date
22-Oct-2009

Print Date
06-Oct-2011

Revision Summary
"***", and red text indicates revision

Disclaimer
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End of MSDS